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Datasheet

Advantech

MIO-5154

3.5" SBC with Intel® Core™ i3-N305, N-series N97 and N50 Alder Lake N processor



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MIO-5154

Intel® Core™ i3-N305 Processor, Intel® Processor N-series 3.5" SBC (Code name: Alder Lake N)

Preliminary



Specifications

	Processor	i3-N305	N97	N50
Platform	Max. Frequency	3.80 GHz	3.60 GHz	3.40 GHz
	Base Frequency	TBU	TBU	TBU
	Core/Thread	8/8	4/4	2/2
	LLC	6MB	6MB	6MB
	CPU TDP	15W	12W	6W
	Chipset	Intel 300 Series Chipset (SoC Integrated)		
	BIOS	AMI EFI 256Mbit		
Memory	Technology	DDR5-4800		
	Max. Capacity	Up to 16GB		
	Channel/Socket	Single Channel / One Socket		
	ECC Support	No	No	No
Graphics	Controller	Intel® UHD Graphics		
	Max. Frequency	1.25 GHz	1.20 GHz	750 MHz
	Execution Unit	32	24	16
	3D/HW Acceleration	DX12, OGL4.0, OCL1.2, HW Encode: HEVC/H265, AVC/H264, VP9, HW Decode: HEVC/H265, AVC/H264, VP9		
Display I/F	LCD	1 x LVDS, Dual Channel 18/24-bit, up to 1920 x 1080		
	HDMI/DP	1 x HDMI 2.0, up to 4096 x 2160 x 24bpp@48-60Hz 1 x DP1.4a, up to 4096 x 2304 x 36bpp@60Hz		
	Triple Display	3 simultaneous displays by LVDS + HDMI + DP		
Ethernet	Controller	LAN: Realtek RTL8111K		
	Speed	2 x GbE		
External I/O	Ethernet	2 x RJ-45		
	VGA/HDMI/DP	-/1/1		
	USB3.2/USB2.0	2/2		
Internal I/O	SATA	1 x SATA GenIII 6.0Gbps		
	USB3.0	2		
	Serial Bus	I2C(Optional to SMBus)		
	COM Port	2 x RS-232/422/485, 4 x RS-232		
	GPIO	8-bit general purpose input output I/O		
	Audio	Realtek ALC888s, Line-in/Line-out/MIC		
	Inverter	5V @2A		
	Smart Fan	12V, 2A (4-wire)		
	Front Panel Control	Power-on, Reset, Buzzer, SATA LED, Power LED, Case Open		
	Watchdog Timer	65536 level, 0-65535 sec		
Board Feature	TPM	fTPM support by Intel® Platform Trust Technology Discrete TPM2.0 (*optional)		
	iManager 3.0	SW API for Hardware Monitor, Smart Fan Control, Brightness Control, I2C, GPIO, WDT		
	M.2 E-Key	1 x E-Key 2230 (PCIe x1, USB2.0)		
Expansion	M.2 B-Key	1 x B-Key 2280 (SATA or PCIe x1) 1 x B-Key 3052 (USB3.2, USB 2.0 or *optional PCIe x1) w/ Nano-SIM		
Power	Supply Voltage	Vin: DC 12V ± 10%; RTC Battery: Lithium 3V/210mAh, support w/o CMOS Battery		
	Connector	ATX 2pin 180D, optional ATX 2pin 90D or DC Jack		
	Power Management	AT, ATX		
	Max. Consumption	30.57W (12V)	27.88W (12V)	18.65W (12V)
Environment	Idle Consumption	9.93W (12V)	20.71W (12V)	13.26W (12V)
	Temperature	Operating: Standard: 0 ~ 60 °C (32 ~ 140 °F) with 0.7m/s airflow Storage: -40 ~ 85 °C (-40 ~ 185 °F)		
	Humidity	Operating: 40 °C @ 95% relative humidity, non-condensing Storage: 60 °C @ 95% relative humidity, non-condensing		
Certification	EMC	CE, FCC Class B, ESD 8KV/15KV Criteria A		
Mechanical	Dimensions	146 x 102 mm (5.7" x 4")		
	Net Weight	145g		

*Note: Support by request

Features

- Intel® Core™ i3-N305, N-series N97 and N50
- DDR5-4800 up to 16GB
- 3 independent display: LVDS + HDMI + DP
- Dual GbE, 6 USB, 6 COM, SMBus/I2C
- Expansion: M.2 E-Key 2230, M.2 B-Key 2280 & 3052
- Supports iManager & Software APIs, WISE-DeviceOn

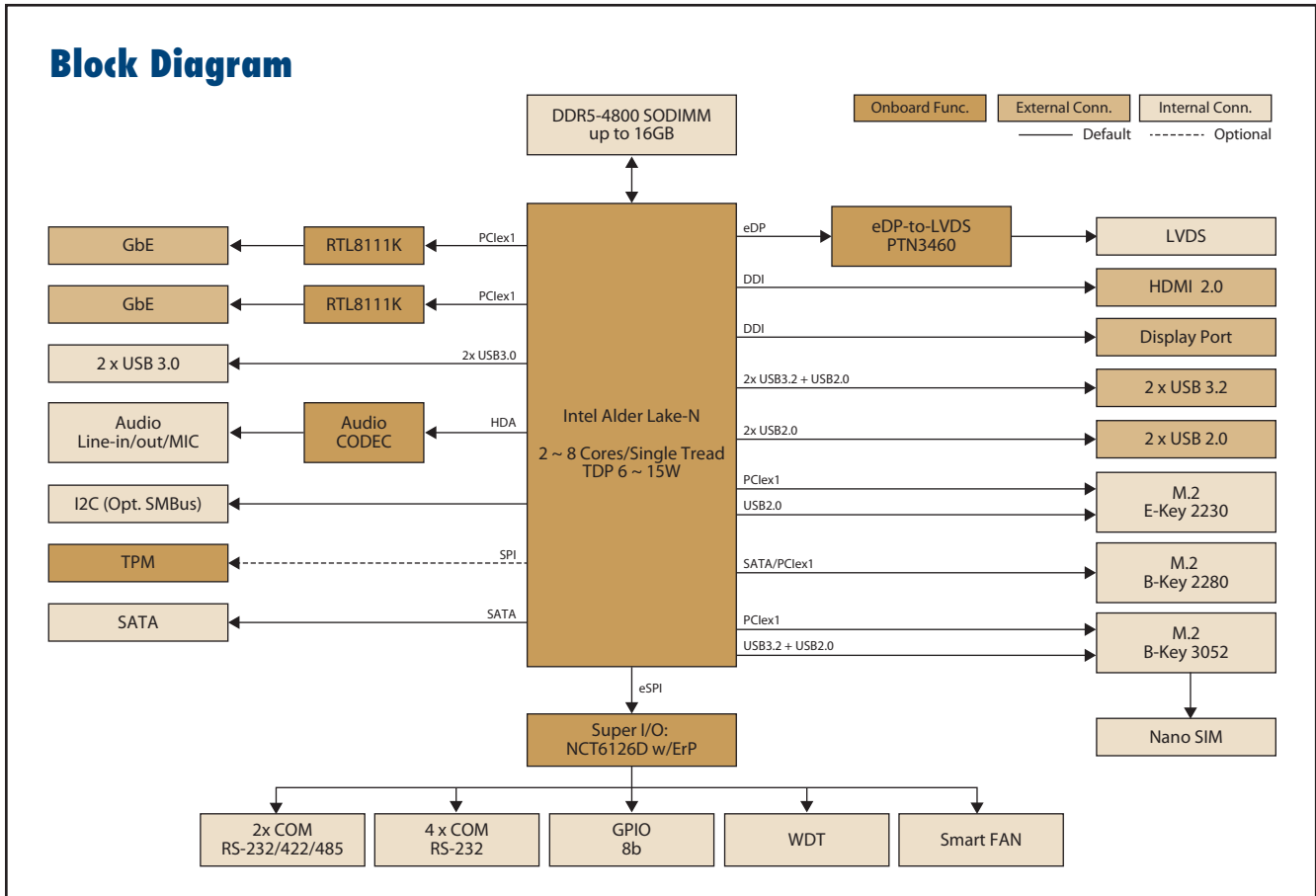
Software APIs:



Utilities:



Block Diagram



Ordering Information

Part No.	CPU	TDP	Max. Frequency	Core	Display Port	USB 3.0	RS232/422/485	RS232	Cable kits	Thermal Solution	Operating Temperature
MIO-5154C3-P8A1	i3-N305	15W	3.80 GHz	8	Y	Y	2	4	Y	Passive	0 ~ 60 °C
MIO-5154N-P6A1	N97	12W	3.60 GHz	4	Y	Y	2	4	Y	Passive	0 ~ 60 °C
MIO-5154N-P4A1	N50	6W	3.20 GHz	2	Y	Y	2	4	Y	Passive	0 ~ 60 °C
MIO-5154NL-P6A1	N97	12W	3.60 GHz	4	N	N	1	3	COM cable*2 only	Passive	0 ~ 60 °C

Packing List

Part No.	Description	Quantity
	MIO-5154 SBC	
	Startup Manual	
1700006291	SATA cable 30cm	1
17000031583-01	A CABLE SATA 15P/1*2P-2.0 35cm	1
1700032181-01	M Cable 2x10P-2.0/USB-A 9P(F)x2 35CM	1
1700030404-01	RS-232 9P(M)/1*10P-1.25 20cm	2
1700019584-01	A Cable 2*5P-2.0/Audio JACK*3 20cm	1
1970005854T001	MIO-5154 15W/12W CPU Heatsink	1
1960064228T021	MIO-5154 6W CPU Heatsink	1

Optional Accessories

Part No.	Description
TBD	MIO-5154 CPU Heatspreader

Embedded OS/API

OS	Part No.	Description
WIN10	TBD	64-bit (UEFI mode only)
Ubuntu 22.04 LTS	TBD	
Software API	Download by website	

Rear I/O View



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